CLAIMS

What is claimed is:

1) A system for high throughput processing of a plurality of probe arrays, comprising:

a means for holding a plurality of cartridges, wherein each cartridge includes a probe array capable of detecting biological molecules;

a means for interfacing with each cartridge; and

a manifold constructed and arranged to couple each cartridge with one or more reservoirs, wherein each cartridge is coupled via the means for interfacing.

2) The system of claim 1, wherein:

the means for holding includes a carousel or magazine.

3) The system of claim 1, wherein:

the carousel includes a plurality of partitions, wherein each partition includes an associated ultrasonic agitator.

4) The system of claim 3, wherein:

the associated ultrasonic agitator provides vibration, wherein the vibration aids in mixing fluids.

5) The system of claim 1, wherein:

each cartridge includes an aperture for accepting the means for interfacing.

6) The system of claim 1, wherein:

each cartridge includes at least two channels coupled by a first pocket.

7) The system of claim 6, wherein:

the first pocket houses the probe array.

8) The system of claim 6, wherein:
one of the at least two channels includes a second pocket.

9) The system of claim 8, wherein:
the second pocket includes an air pocket, wherein the air pocket is constructed and arranged to form of a bubble.

10) The system of claim 9, wherein:
the bubble includes air or gas.

11) The system of claim 9, wherein:
the bubble aids in mixing fluids.

12) The system of claim 1, wherein:
the probe array includes a synthesized probe array.

13) The system of claim 1, wherein:
the probe array includes a spotted probe array.

14) The system of claim 1, wherein:
the means for interfacing includes a pin or needle.

15) The system of claim 14, wherein:
the needle includes a dual lumen needle having an outer lumen and an inner lumen.

16) The system of claim 15, wherein:
the outer lumen is constructed and arranged for the removal of fluids or gas and the inner lumen is constructed and arranged for the introduction of fluids or gas.

17) The system of claim 1, wherein:

each of the one or more reservoirs includes a fluid.

18) The system of claim 17, wherein:

the fluid is a sample, wash, buffer, stain, bleach, or water.

19) The system of claim 1, further comprising:

a fluid bath constructed and arranged to provide thermal control of each of the cartridges.

20) The system of claim 19, wherein:

the thermal control promotes hybridization efficiency of a plurality of biological targets to the probe array.

21) A method, comprising the acts of:

holding a plurality of cartridges, wherein each cartridge includes a probe array capable of detecting biological molecules;

interfacing with each cartridge; and

coupling each cartridge with one or more reservoirs, wherein each cartridge is coupled via the interface.

22) The method of claim 21, wherein:

each cartridge includes an aperture for interfacing.

23) The method of claim 21, wherein:

each cartridge includes at least two channels coupled by a first pocket.

24) The method of claim 23, wherein:

the first pocket houses the probe array.

25) The system of claim 21, wherein:

the probe array includes a synthesized probe array.

26) The system of claim 21, wherein:

the probe array includes a spotted probe array.

27) The system of claim 21, wherein:

each of the one or more reservoirs includes a fluid.

28) The system of claim 27, wherein:

the fluid is a sample, wash, buffer, stain, bleach, or water.

29) A system, comprising:

a carousel constructed and arranged to hold a plurality of cartridges, wherein each cartridge includes a probe array capable of detecting biological molecules;

a fluid bath constructed and arranged to provide thermal control of each of the cartridges;

a dual lumen needle constructed and arranged to interface with each cartridge; and

a manifold constructed and arranged to couple each cartridge with one or more reservoirs, wherein each cartridge is coupled via the dual lumen needle.

30) The system of claim 29, wherein:

the carousel includes a plurality of partitions, wherein each partition includes an associated ultrasonic agitator.

31) The system of claim 30, wherein:

the associated ultrasonic agitator provides vibration, wherein the vibration aids in mixing fluids.

32) The system of claim 29, wherein:

the probe array includes a synthesized probe array.

33) The system of claim 29, wherein:

the probe array includes a spotted probe array.

34) The system of claim 29, wherein:
the dual lumen needle includes an outer lumen and an inner lumen.

35) The system of claim 34, wherein:
the outer lumen is constructed and arranged for the removal of fluids or gas and the inner lumen is constructed and arranged for the introduction of fluids or gas.

36) The system of claim 29, wherein:
each of the one or more reservoirs includes a fluid.

37) The system of claim 36, wherein:
the fluid is a sample, wash, buffer, stain, bleach, or water.

38) The system of claim 29, wherein:
the thermal control promotes hybridization efficiency of a plurality of biological targets to the probe array.

39) A method, comprising the acts of:
holding a plurality of cartridges, wherein each cartridge includes a probe array capable of detecting biological molecules;
providing thermal control of each of the cartridges;
interfacing with each cartridge; and
coupling each cartridge with one or more reservoirs, wherein each cartridge is coupled via the interface.

40) A method, comprising the acts of:
holding a plurality of cartridges, wherein each cartridge includes a probe array capable of detecting biological molecules;
interfacing with each cartridge;

coupling each cartridge with one or more reservoirs, wherein each cartridge is coupled via the interface; and

serially introducing a plurality of fluids into the probe array cartridge.